

## TABLE OF CONTENTS

<b>Chapter 1</b>	<b>Project Description .....</b>	<b>1-1</b>
1.1	Introduction .....	1-1
1.1.1	Project Setting .....	1-11
1.2	Purpose and Need .....	1-11
1.2.1	Purpose of the Project.....	1-11
1.2.2	Need for the Project.....	1-12
1.3	Project Description .....	1-24
1.4	Project Alternatives .....	1-25
1.4.1	Common Design Features of the Build Alternatives .....	1-25
1.4.2	Unique Design Features of the Build Alternatives .....	1-36
1.4.3	TSM Alternative .....	1-38
1.4.4	TDM Alternative .....	1-39
1.4.5	Alternative 1: No Build .....	1-40
1.5	Project Schedule .....	1-40
1.6	Environmental Decision Process .....	1-40
1.7	Identification of the Preferred Alternative.....	1-41
1.8	Alternatives Considered but Eliminated from Future Discussion .....	1-42
1.8.1	Alternative 3 .....	1-43
1.8.2	Avenida Pico Interchange Options .....	1-43
1.9	Permits and Approvals Needed .....	1-46
<b>Chapter 2</b>	<b>Affected Environment, Environmental Consequences, and Avoidance, Minimization, and/or Mitigation Measures .....</b>	<b>2-1</b>
	<i>Human Environment</i> .....	2.1-1
2.1	Land Use.....	2.1-1
2.1.1	Affected Environment .....	2.1-1
2.1.2	Environmental Consequences.....	2.1-14
2.1.3	Avoidance, Minimization, and/or Mitigation Measures .....	2.1-15
2.2	Growth.....	2.2-1
2.2.1	Regulatory Setting .....	2.2-1
2.2.2	Affected Environment .....	2.2-2
2.2.3	Environmental Consequences.....	2.2-4
2.2.4	Avoidance, Minimization, and/or Mitigation Measures.....	2.2-5
2.3	Community Impacts .....	2.3-1
2.3.1	Community Character and Cohesion.....	2.3-1
2.3.2	Relocations and Real Property Acquisition.....	2.3-15
2.3.3	Environmental Justice.....	2.3-22
2.4	Utilities and Emergency Services.....	2.4-1
2.4.1	Affected Environment .....	2.4-1
2.4.2	Environmental Consequences.....	2.4-2
2.4.3	Avoidance, Minimization, and/or Mitigation Measures.....	2.4-5
2.5	Traffic and Transportation/Pedestrian and Bicycle Facilities.....	2.5-1
2.5.1	Regulatory Setting .....	2.5-1
2.5.2	Affected Environment .....	2.5-1
2.5.3	Environmental Consequences.....	2.5-5

	2.5.4	Avoidance, Minimization, and/or Mitigation Measures .....	2.5-8
2.6		Visual and Aesthetics.....	2.6-1
	2.6.1	Regulatory Setting.....	2.6-1
	2.6.2	Affected Environment.....	2.6-1
	2.6.3	Environmental Consequences .....	2.6-28
	2.6.4	Avoidance, Minimization, and/or Mitigation Measures .....	2.6-47
2.7		Cultural Resources .....	2.7-1
	2.7.1	Regulatory Setting.....	2.7-1
	2.7.2	Affected Environment.....	2.7-2
	2.7.3	Environmental Consequences .....	2.7-10
	2.7.4	Avoidance, Minimization, and/or Mitigation Measures .....	2.7-11
		<b>Physical Environment</b> .....	2.8-1
2.8		Hydrology and Floodplain .....	2.8-1
	2.8.1	Regulatory Setting.....	2.8-1
	2.8.2	Affected Environment.....	2.8-1
	2.8.3	Environmental Consequences .....	2.8-7
	2.8.4	Avoidance, Minimization, and/or Mitigation Measures .....	2.8-8
2.9		Water Quality and Storm Water Runoff .....	2.9-1
	2.9.1	Regulatory Setting.....	2.9-1
	2.9.2	Affected Environment.....	2.9-6
	2.9.3	Environmental Consequences .....	2.9-9
	2.9.4	Avoidance, Minimization, and/or Mitigation Measures .....	2.9-12
2.10		Geology/Soils/Seismicity/Topography .....	2.10-1
	2.10.1	Regulatory Setting.....	2.10-1
	2.10.2	Affected Environment.....	2.10-3
	2.10.3	Environmental Consequences .....	2.10-12
	2.10.4	Avoidance, Minimization, and/or Mitigation Measures .....	2.10-14
2.11		Paleontology.....	2.11-1
	2.11.1	Regulatory Setting.....	2.11-1
	2.11.2	Affected Environment.....	2.11-1
	2.11.3	Environmental Consequences .....	2.11-2
	2.11.4	Avoidance, Minimization, and/or Mitigation Measures .....	2.11-3
2.12		Hazardous Waste/Materials .....	2.12-1
	2.12.1	Regulatory Setting.....	2.12-1
	2.12.2	Affected Environment.....	2.12-2
	2.12.3	Environmental Consequences .....	2.12-5
	2.12.4	Avoidance, Minimization, and/or Mitigation Measures .....	2.12-7
2.13		Air Quality .....	2.13-1
	2.13.1	Regulatory Setting.....	2.13-1
	2.13.2	Affected Environment.....	2.13-2
	2.13.3	Environmental Consequences .....	2.13-10
	2.13.4	Avoidance, Minimization, and/or Mitigation Measures .....	2.13-23
2.14		Noise and Vibration .....	2.14-1
	2.14.1	Regulatory Setting.....	2.14-1
	2.14.2	Affected Environment.....	2.14-5
	2.14.3	Environmental Consequences .....	2.14-37
	2.14.4	Avoidance, Minimization, and/or Mitigation Measures .....	2.14-139
		<b>Biological Environment</b> .....	2.15-1
2.15		Biological Environment .....	2.15-1
	2.15.1	Natural Communities .....	2.15-2

2.16	Wetlands and Other Waters.....	2.16-1
2.16.1	Regulatory Setting.....	2.16-1
2.16.2	Affected Environment.....	2.16-2
2.16.3	Environmental Consequences.....	2.16-5
2.16.4	Avoidance, Minimization, and/or Mitigation Measures.....	2.16-11
2.17	Plant Species.....	2.17-1
2.17.1	Regulatory Setting.....	2.17-1
2.17.2	Affected Environment.....	2.17-1
2.17.3	Environmental Consequences.....	2.17-11
2.17.4	Avoidance, Minimization, and/or Mitigation Measures.....	2.17-11
2.18	Animal Species.....	2.18-1
2.18.1	Regulatory Setting.....	2.18-1
2.18.2	Affected Environment.....	2.18-1
2.18.3	Environmental Consequences.....	2.18-12
2.18.4	Avoidance, Minimization, and/or Mitigation Measures.....	2.18-13
2.19	Threatened and Endangered Species.....	2.19-1
2.19.1	Regulatory Setting.....	2.19-1
2.19.2	Affected Environment.....	2.19-2
2.19.3	Environmental Consequences.....	2.19-12
2.19.4	Avoidance, Minimization, and/or Mitigation Measures.....	2.19-15
2.20	Invasive Species.....	2.20-1
2.20.1	Regulatory Setting.....	2.20-1
2.20.2	Affected Environment.....	2.20-1
2.20.3	Environmental Consequences.....	2.20-2
2.20.4	Avoidance, Minimization, and/or Mitigation Measures.....	2.20-3
2.21	Cumulative Impacts.....	2.21-1
2.21.1	Regulatory Setting.....	2.21-1
2.21.2	Methodology.....	2.21-1
2.21.3	Affected Environment.....	2.21-2
2.21.4	Cumulative Land Development Projects.....	2.21-5
2.21.5	Avoidance, Minimization, and/or Mitigation Measures.....	2.21-21
2.22	Climate Change.....	2.22-1
2.22.1	Regulatory Setting.....	2.22-2
2.22.2	Environmental Consequences.....	2.22-6
<b>Chapter 3</b>	<b>Comments and Coordination.....</b>	<b>3-1</b>
3.1	Consultation and Coordination with Agencies.....	3-5
3.1.1	Project Team Coordination.....	3-5
3.1.2	Historical Resources Consultation.....	3-7
3.1.3	Public Participation.....	3-8
3.2.2	Consultation with Resource Agencies.....	3-21
<b>Chapter 4</b>	<b>List of Preparers.....</b>	<b>4-1</b>
<b>Chapter 5</b>	<b>Distribution List.....</b>	<b>5-1</b>
<b>Appendix A</b>	<b>California Environmental Quality Act (CEQA)</b>	
	<b>Evaluation.....</b>	<b>A-1</b>
A.1	Determining Significance Under CEQA.....	A-1
A.1.1	CEQA Thresholds of Significance.....	A-2

A.2	Discussion of Significance of impacts .....	A-9
A.2.1	Aesthetics .....	A-9
A.2.2	Agriculture and Forest Resources .....	A-10
A.2.3	Air Quality .....	A-11
A.2.4	Biological Resources.....	A-12
A.2.5	Cultural Resources and Paleontological Resources .....	A-14
A.2.6	Geology and Soils .....	A-15
A.2.7	Greenhouse Gas Emissions.....	A-17
A.2.8	Hazards/Hazardous Waste and Materials.....	A-17
A.2.9	Hydrology and Water Quality.....	A-19
A.2.10	Land Use and Planning .....	A-23
A.2.11	Mineral Resources.....	A-24
A.2.12	Noise .....	A-24
A.2.13	Population and Housing.....	A-26
A.2.14	Public Services.....	A-27
A.2.15	Recreation .....	A-28
A.2.16	Transportation/Traffic.....	A-29
A.2.17	Utilities and Service Systems.....	A-30
A.2.18	CEQA Mandatory Findings of Significance.....	A-32
A.2.19	Climate Change.....	A-32
A.3	Mitigation Measures for Significant Impacts under CEQA.....	A-35
<b>Appendix B Correspondence .....</b>		<b>B-1</b>
<b>Appendix C Title VI Policy.....</b>		<b>C-1</b>
<b>Appendix D Summary of Relocation Benefits .....</b>		<b>D-1</b>
D.1	California Department of Transportation Relocation Assistance Program.....	D-3
D.2	RELOCATION ASSISTANCE ADVISORY SERVICES.....	D-3
D.2.1	RESIDENTIAL RELOCATION PAYMENTS PROGRAM.....	D-3
D.2.2	THE BUSINESS AND FARM RELOCATION ASSISTANCE PROGRAM.....	D-3
D.2.3	ADDITIONAL INFORMATION .....	D-3
D.2.4	IMPORTANT NOTICE.....	D-4
<b>Appendix E Glossary of Technical Terms .....</b>		<b>E-1</b>
<b>Appendix F Minimization and/or Mitigation Summary/Environmental Commitment Record .....</b>		<b>F-1</b>
<b>Appendix G List of Acronyms .....</b>		<b>G-1</b>
<b>Appendix H List of Technical Studies .....</b>		<b>H-1</b>
<b>Appendix I References.....</b>		<b>I-1</b>
I.1	References.....	I-1
I.2	Persons and Organizations Contacted and Website References .....	I-5
<b>Appendix J Concept Plans .....</b>		<b>J-1</b>

## List of Figures

Figure 1-1 Regional Location .....	1-3
Figure 1-2 Project Location .....	1-5
Figure 1-3 Project Limits .....	1-7
Figure 2.1-1 Existing Land Use .....	2.1-3
Figure 2.1-2 Future Land Uses .....	2.1-5
Figure 2.1-3 Coastal Zone.....	2.1-17
Figure 2.3-1 Study Area Census Tracts .....	2.3-3
Figure 2.3-2 Potential Acquisitions Build Alternative 4 with Design Option A .....	2.3-17
Figure 2.6-1 Key View Locations.....	2.6-9
Figure 2.6-2 Key View 1 Existing Condition .....	2.6-11
Figure 2.6-3 Key View 2 Existing Condition .....	2.6-15
Figure 2.6-4 Key View 3 Existing Condition .....	2.6-17
Figure 2.6-5 Key View 4 Existing Condition .....	2.6-19
Figure 2.6-6 Key View 5 Existing Condition .....	2.6-21
Figure 2.6-7 Key View 6 Existing Condition .....	2.6-25
Figure 2.6-8 Key View 1 Proposed Condition – Alternative 4 with Design Option A ...	2.6-31
Figure 2.6-9 Key View 2 Proposed Condition – Alternative 4.....	2.6-35
Figure 2.6-10 Key View 3 Proposed Condition – Alternative 4.....	2.6-37
Figure 2.6-11 Key View 4 Proposed Condition – Alternative 4.....	2.6-41
Figure 2.6-12 Key View 5 Proposed Condition – Alternative 4.....	2.6-45
Figure 2.6-13 Key View 6 Proposed Condition – Alternative 4.....	2.6-49
Figure 2.8-1 FEMA Map No. 06059C0509J .....	2.8-3
Figure 2.8-2 FEMA Map No. 06059C0528J .....	2.8-5
Figure 2.10-1 Regional Geology.....	2.10-5
Figure 2.14-1 Monitoring and Modeled Receiver Locations.....	2.14-13
Figure 2.14-2 Alternative 4 Modeled Sound Barriers and Receiver Locations .....	2.14-107
Figure 2.21-1 Cumulative Projects .....	2.21-11
Figure 2.22-1 California GHG Forecast .....	2.22-5
Figure 2.22-2 Possible Effect of Traffic Operation Strategies in Reducing On-Road CO <sub>2</sub> Emissions .....	2.22-6
Figure 2.22-3 Cascade of Uncertainties.....	2.22-12
Figure 2.22-4 Mobility Pyramid .....	2.22-16

**This page intentionally left blank**

## List of Tables

Table 1.2-1	Levels of Service .....	1-15
Table 1.2-2	Existing Condition (2009) Mainline LOS .....	1-17
Table 1.2-3	Future Condition (2040) Mainline LOS (No Build).....	1-18
Table 1.9-1	Required Permits, Reviews, and Approvals .....	1-47
Table 1.9-2	Summary of Impacts.....	1-48
Table 2.2-1	Population Growth Estimates .....	2.2-3
Table 2.3-1	Population Estimates in the Study Area .....	2.3-6
Table 2.3-2	2000 Ethnic Composition in the Study Area .....	2.3-7
Table 2.3-3	Local, County, Regional, and State Demographic Summaries (Census 2000).....	2.3-8
Table 2.3-4	2000 Employment Percentages for County and the Cities .....	2.3-9
Table 2.3-5	2000 Age Distribution in the Study Area .....	2.3-10
Table 2.3-6	Housing Profile.....	2.3-11
Table 2.3-7	Housing Tenure .....	2.3-12
Table 2.3-8	Full Acquisitions – Alternative 4 with Design Option A .....	2.3-15
Table 2.3-9	Partial Acquisitions – Alternative 4 with Design Option A .....	2.3-16
Table 2.3-10	Summary of Property Acquisitions for the Build Alternative 4 with Design Option A.....	2.3-19
Table 2.3-11	Estimated Construction Employment.....	2.3-19
Table 2.3-12	Estimated Annual Property Tax Loss for the City of San Clemente Alternative 4 with Design Option A.....	2.3-20
Table 2.3-13	Estimated Annual Sales Tax Revenue Loss for the City of San Clemente.....	2.3-20
Table 2.3-14	Estimated Employee Displacements      Build Alternative 4 with Design Option A.....	2.3-22
Table 2.3-15	Environmental Justice Populations.....	2.3-24
Table 2.4-1	Utility Impacts .....	2.4-3
Table 2.5-1	Existing Condition (2009) Mainline LOS .....	2.5-3
Table 2.5-2	Future No Build Condition (2040) Mainline LOS .....	2.5-3
Table 2.5-3	Future Build Condition (2040) Mainline LOS .....	2.5-7
Table 2.10-1	Soil Types Within the Study Area.....	2.10-8
Table 2.11-1	Paleontological Sensitivity of the Geologic Units in the Study Area.....	2.11-2
Table 2.13-1	State and Federal Criteria Air Pollutant Standards, Effects, and Sources ..	2.13-5
Table 2.13-2	Local Air Quality Levels .....	2.13-8
Table 2.13-3	Build and No Build Emissions on I-5.....	2.13-21
Table 2.14-1	Noise Abatement Criteria for use in NEPA-23 CFR 772 Analysis.....	2.14-3
Table 2.14-2	Noise Levels of Common Activities .....	2.14-3
Table 2.14-3	Short-Term Ambient Noise Monitoring Results .....	2.14-10
Table 2.14-4	Long-Term 24-Hour Noise Monitoring Results at 2113 Calle Ola Verde, San Clemente, California.....	2.14-38
Table 2.14-5	Long-Term 24-Hour Noise Monitoring Results at 2953 Calle Frontera, San Clemente, California .....	2.14-39
Table 2.14-6	Long-Term 24-Hour Noise Monitoring Results at 34431 Calle Portola, Dana Point, California.....	2.14-40
Table 2.14-7	Long-Term 24-Hour Noise Monitoring Results at 33681 Paseo Del Puerto, San Juan Capistrano, California.....	2.14-41
Table 2.14-8	Interior/Exterior Noise Monitoring Results.....	2.14-42
Table 2.14-9	Existing Traffic Noise Levels, dBA $L_{eq}$ .....	2.14-43

List of Tables

---

Table 2.14-10 Typical Construction Equipment Noise Levels .....2.14-54

Table 2.14-11 Projected Traffic Noise Levels (with Design Option A), dBA L<sub>eq</sub> .....2.14-58

Table 2.14-12 Projected Traffic Noise Levels (with Design Option B), dBA L<sub>eq</sub> .....2.14-73

Table 2.14-14 Predicted Noise Levels and Insertion Loss (dBA) for Build  
Alternative 4 .....2.14-86

Table 2.14-15 Predicted Noise Levels and Insertion Loss (dBA) for Build  
Alternative 4 (Additional)<sup>1</sup> .....2.14-101

Table 2.14-16 Feasible Sound barriers for Build Alternative 4.....2.14-104

Table 2.14-17 Summary of Abatement Information .....2.14-134

Table 2.14-18 Preliminary Decision On Noise Abatement Measures.....2.14-139

Table 2.15-1 Vegetation Communities Occurring in the BSA.....2.15-2

Table 2.16-1 Permanent Project Impacts to Potential USACE Jurisdictional and  
Nonjurisdictional Nonwetland Waters (acres).....2.16-6

Table 2.17-1 Listed, Proposed, and Special-Status Plant Species and Critical Habitat  
Potentially Occurring or Known to Occur in and in the Vicinity of the  
BSA.....2.17-3

Table 2.18-1 Listed, Proposed, and Special-Status Wildlife Species Potentially  
Occurring or Known to Occur in and in the Vicinity of the BSA.....2.18-3

Table 2.19-1 Summary of Threatened and Endangered Plant Species.....2.19-4

Table 2.19-2 Summary of Threatened and Endangered Animal Species.....2.19-6

Table 2.21-1 Cumulative Local Transportation and Development Projects .....2.21-6

Table 2.22-1 Vehicle Miles Traveled Summary .....2.22-7

Table 2.22-2 Vehicle Hours Traveled Summary.....2.22-8

Table 2.22-3 Annual Greenhouse Gas Emissions .....2.22-9

Table 2.22-4 Model Year 2015 Required Miles Per Gallon (mpg) by Alternative .....2.22-10

Table 2.22-5 Department Climate Change Strategies .....2.22-17

Table 3-1 Summary of Consultation and Coordination Activities .....3-1

Table 3-2 Comment Letters Received During Public Comment Period .....3-17